



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
611 RYAN PLAZA DRIVE, SUITE 400  
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October 24, 2002

William A. Eaton, Vice President  
Operations - Grand Gulf Nuclear Station  
Entergy Operations, Inc.  
P.O. Box 756  
Port Gibson, Mississippi 39150

**SUBJECT: GRAND GULF NUCLEAR STATION NRC INTEGRATED INSPECTION  
REPORT 50-416/02-04**

Dear Mr. Eaton:

On September 28, 2002, the NRC completed an inspection at your Grand Gulf Nuclear Station, facility. The enclosed integrated report documents the inspection findings which were discussed on October 4, 2002, with you and other members of your staff.

This inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of this inspection, the NRC has identified an issue that was evaluated under the risk significance determination process as having very low safety significance (Green). The NRC has also determined that a violation is associated with this issue. This violation is being treated as a noncited violation (NCV), consistent with Section VI.A of the Enforcement Policy. The NCV is described in the subject inspection report. If you contest the violation or significance of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Grand Gulf Nuclear Station facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Entergy Operations, Inc.

-2-

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

*/RA/*

William D. Johnson, Chief  
Project Branch A  
Division of Reactor Projects

Docket: 50-416  
License: NPF-29

Enclosure  
NRC Inspection Report  
50-416/02-04

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-3-

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**ENCLOSURE**

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 50-416  
License: NPF-29  
Report No: 50-416/02-04  
Licensee: Entergy Operations, Inc.  
Facility: Grand Gulf Nuclear Station  
Location: Waterloo Road  
Port Gibson, Mississippi 39150  
Dates: June 30 through September 28, 2002  
Inspectors: T. L. Hoeg, Senior Resident Inspector  
D. R. Carter, Health Physicist  
R. W. Deese, Resident Inspector  
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C. J. Paulk, Senior Project Engineer  
W. C. Sifre, Reactor Inspector  
Approved By: W. D. Johnson, Chief, Project Branch A  
Division of Reactor Projects  
Attachment: Supplemental Information

## SUMMARY OF FINDINGS

IR 05000416-02-04, Entergy Operations, Inc., on 6/30/02 - 09/28/02; Grand Gulf Nuclear Station. Postmaintenance testing, surveillance testing.

The inspection was conducted by resident inspectors and a regional reactor inspector. The inspectors identified one Green noncited violation. The significance of any findings are indicated by their color (Green, White, Yellow, or Red) using IMC 0609 "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

### A. Inspector Identified Findings

#### **Cornerstone: Mitigating Systems**

- Green. The licensee failed to establish appropriate instructions for the circumstances when backfilling the reactor core isolation cooling high steam flow transmitter. This resulted in technicians improperly backfilling the detector. This caused the detector to isolate steam to the reactor core isolation cooling turbine, rendering the system inoperable.

This violation of Technical Specification 5.4.1 is noncited in accordance with Section VI.A of the NRC's Enforcement Policy, and is in the licensee's corrective action program (CR-GGN-2002-0947). The finding was of very low safety significance because although the reactor core isolation cooling system was inoperable, all other remaining mitigating systems remained operable and the duration of the system inoperability was short (Section 1R19).

### B. Licensee Identified Findings

A violation of very low safety significance, which was identified by the licensee has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and its corrective action tracking number are listed in Section 4OA7 of this report.

## Report Details

Summary of Plant Status: The plant began the inspection period at 100 percent rated thermal power and subsequently performed a planned power reduction to 80 percent on June 30, 2002, for initial startup of the auxiliary cooling tower. The plant was then operated at or near 100 percent rated thermal power except for periodic planned power reductions for monthly control rod exercising and periodic control rod pattern adjustments until July 25, when a partial loss of radial well pumping capability necessitated a power reduction to 78 percent of rated power. Following the recovery of all radial wells, the plant returned to 100 percent power and remained there until August 5, when the plant began coasting down in power. The coastdown ended on September 13, with the plant at 84 percent rated thermal power when the plant entered a refueling outage. The plant remained shutdown in this outage for the remainder of the inspection period.

### **1. REACTOR SAFETY**

#### **Initiating Events, Mitigating Systems, Barrier Integrity [Reactor - R]**

##### 1R01 Adverse Weather Protection (71111.01)

###### a. Inspection Scope

The inspectors reviewed one sample of Grand Gulf Nuclear Station (GGNS) personnel's protection of the three divisions of the 125 Volt dc engineered safety features (ESF) batteries for sustained hot weather conditions since these components are housed in rooms that are ventilated but not air conditioned. This review included walkdowns of the battery rooms focusing on hot weather susceptibilities, reviews of the system's designed ventilation features, and a review of the licensee's actions to ensure the batteries remain operable in hot weather. Technical Manual "C&D Station Battery Installation and Operating Instructions," dated October 12, 1995, was also reviewed to check the vendor's recommendations for sustained battery operations at higher than the 77° F reference temperature.

###### b. Findings

No findings of significance were identified.

##### 1R04 Equipment Alignment

###### .1 Partial System Walkdowns (71111.04)

###### a. Inspection Scope

The inspectors performed partial system walkdown inspections and reviews of a train in each of three systems important to reactor safety in order to verify the operability of the systems. The inspectors reviewed system operating instructions, system valve and breaker lineups, operator logs, and control room indications. The inspectors also verified valves, breakers, and control circuits were in their required positions for operability. The following systems were inspected:

- Emergency diesel generator, Division I
- Low pressure core spray system
- Standby service water system, Train A

b. Findings

No findings of significance were identified.

.2 Semi-Annual Complete System Walkdown (71111.04S)

a. Inspection Scope

During the week of July 22, 2002, the inspectors performed a complete walkdown of the Division II emergency diesel generator to determine if there were any discrepancies between the actual equipment alignment versus what was procedurally required. During the walkdown, System Operating Instruction 04-1-01-P75-1, "Standby Diesel Generator System," Revision 62, Surveillance Procedure 06-OP-1P75-V-0013, "Standby Diesel Generator (SDG) 12 Operability Verification," Revision 103, and Drawing M-1070B, "Standby Diesel Generator System," Revision 30, were used by the inspectors to verify major diesel generator components were correctly labeled and aligned. The inspectors also reviewed open condition reports on the system for any deficiencies that could affect the ability of the system to perform its design function. Documentation associated with control room deficiencies, temporary modifications, operator workarounds, and items tracked by plant engineering were also reviewed to assess their collective impact on system operation.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Tours (71111.05Q)

a. Inspection Scope

The inspectors reviewed area fire plans and performed walkdowns of six plant areas to assess the materiel condition and operational status of fire detection, suppression systems and equipment; the materiel condition of fire barriers; and the control of transient combustibles. Specific risk-significant plant areas included:

- Division III emergency diesel generator room, Room 1D304
- Division III switchgear room, Room 0C210
- Electrical penetration room, Room 1A318
- ESF Heating, ventilation, and air conditioning equipment room, Room 0C302
- Residual heat removal (RHR) Pump C Room 1A118
- Standby service water Pump B Room 2M110



b. Findings

No findings of significance were identified.

.2 Annual Drill Observation (71111.05A)

a. Inspection Scope

On August 29, 2002, the inspectors observed a fire brigade drill staged in Room 0C403, computer and control panel room, to evaluate the readiness of the fire brigade to fight fires. The inspectors reviewed the strategies and information in Fire Preplan C-10, "Computer and Control Panels, Room 0C403, Area 25A," Revision 11, to verify if it was consistent with the fire protection design features, fire area boundaries, and combustible loading assumptions shown in the fire protection plan. The inspectors observed the fire brigade members: (1) donning protective clothing, (2) selecting turnout gear, (3) entering the fire zone, (4) using the fire preplan strategies, and (5) communicating with the control room staff. The inspectors observed the fire fighting equipment brought to the fire scene to evaluate whether sufficient equipment was available for the simulated fire. The inspectors observed fire fighting directions and radio communications between the brigade leader, brigade members, and the control room.

b. Findings

No findings of significance were identified.

1R06 Flood Protection (71111.06)

.1 Internal Flooding

a. Inspection Scope

The inspectors reviewed one sample of the GGNS's internal flooding protection features associated with the general flood protection measures for RHR Pump C room. The inspectors also reviewed specific flood protection measures associated with Maintenance Action Item (MAI) 307083 for the cleaning of the auxiliary decay heat removal heat exchangers which are housed in the RHR Pump C room. In order to clean the heat exchangers, the flood door for the RHR Pump C room was propped open to facilitate the necessary equipment. The inspectors performed a walkdown of the area reviewing internal flooding vulnerabilities, questioned maintenance personnel on contingencies for having the door propped open, and reviewed the protective features and procedures for mitigating the impact of any flooding.

b. Findings

No findings of significance were identified.

.2 External Flooding

a. Inspection Scope

The inspectors reviewed the Technical Requirements Manual Specification 6.7.5 and performed visual inspections of Culvert Number 1, examining its blockage and slope. The inspectors also reviewed flood protection measures for external sources as described in the Updated Final Safety Analysis Report and Calculation C-A-254.5 "Evaluation of the Effect of Predictive Maximum Precipitation Flood Levels Above Elevation 133 Feet on Safe Plant Operation," Revision 1, and the associated Supplement 1, Revision 0, to that calculation, and then performed walkdowns to verify that the assumptions made in the external flooding analyses remained valid.

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection Activities (71111.08)

.1 Performance of Nondestructive Examination (NDE) Activities

a. Inspection Scope

The inspector requested and reviewed the NDE records for work that was performed for the current outage at the Grand Gulf Nuclear Station. The inspector also observed the following ultrasonic and magnetic particle examinations:

- C11-G1010-W30 Control Rod Drive System
- E51-G004-W29 Reactor Core Isolation Coolant System

The inspector reviewed two weld repairs and two indications that were accepted for continued service. They were performed in accordance with ASME Code requirements.

The inspector reviewed licensee NDE and contractor personnel qualification and certification records to determine if the NDE personnel were certified to perform the above examinations. The inspector also reviewed ultrasonic calibration records to verify acceptability to ASME Code requirements.

The inspector reviewed the implementation of the containment inservice inspection program plan against the requirements of ASME Section XI, Subsection IWE.

b. Findings

No findings of significance were identified.

.2 Problem Identification and Resolution

a. Inspection Scope

The inspector performed a detailed review of a sample of condition reports initiated within the past 2 years in the area of inservice inspection activities. The review was conducted to ascertain that the plant personnel were identifying performance issues within the inservice inspection program. This review assessed the effectiveness of cause determination, corrective action, and the adequacy of the plant personnel's effort to identify transportability and generic issues. The review also assessed the effectiveness of the plant personnel's effort to identify and address programmatic issues within the inservice inspection program.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11Q)

a. Inspection Scope

On August 1, 2002, the inspectors observed one session of licensed operator requalification training activities in the simulator to assess the licensee's effectiveness in conducting the requalification program and to verify that licensed individuals received the appropriate level of training required to maintain their licenses. The observed training consisted of establishing shutdown cooling and other nonroutine activities in preparation for the refueling outage. The inspectors also observed the post-training critique conducted by the training instructor and the shift manager to verify that weak areas observed during simulator operations were appropriately identified for additional training.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12Q)

a. Inspection Scope

The inspectors reviewed performance-based problems involving three selected in-scope structures, systems, or components (SSCs) to assess the effectiveness of the Maintenance Rule Program. Reviews focused on: (1) proper Maintenance Rule scoping in accordance with 10 CFR 50.65; (2) characterization of failed SSCs; (3) safety significance classifications; (4) 10 CFR 50.65 (a)(1) and (a)(2) classifications; and, (5) the appropriateness of performance criteria for SSCs classified as (a)(2), and goals and corrective actions for SSCs classified as (a)(1). The inspectors reviewed the most recent system health reports and system functional failures for the last two years. The following conditions were reviewed:

- Containment Isolation Valve E12F044A inoperability
- Control rod drive system failures for Control Rods 12-13 and 60-37
- Control room air conditioning Train B operational failures

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation (71111.13)

a. Inspection Scope

Throughout the inspection period, the inspectors reviewed weekly and daily work schedules to determine when risk-significant activities were scheduled. The inspectors discussed five selected activities with operations and work control personnel regarding risk evaluations and overall plant configuration control. The inspectors discussed emergent work issues with work control center personnel and reviewed the prioritization of scheduled activities. The inspectors verified the performance of plant risk assessments related to planned and emergent maintenance activities as required by 10 CFR 50.65(a)(4) and Plant Procedure 01-S-18-6, "Risk Assessment of Maintenance Activities," Revision 1.

Specific maintenance items reviewed during this period included:

- MAI 297570, Hydrogen Recombiner B
- MAI 307035, Low pressure core spray system
- MAI 315778, Train B suppression pool makeup system
- MAI 316476, Train A RHR system
- MAI 318122, Instrument air system

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Events (71111.14)

.1 Loss of Spent Fuel Pool Cooling

a. Inspection Scope

On August 22, 2002, the plant experienced a loss of spent fuel pool cooling. The leak detection system (LDS) isolated and secured the fuel pool cooling and clean-up system when the LDS standpipe did not drain quickly enough after water was drained into the standpipe following restoration of a maintenance lineup. GGNS personnel investigated and discovered that the standpipe drain line was blocked and not allowing the standpipe to drain. The standpipe sensed this high level for an extended time and LDS logic interpreted this as a leak that the drain line could not keep up with and by design secured the running spent fuel pool cooling pump. GGNS personnel were able to assess the cause of the pump securing and restore fuel pool cooling in 44 minutes

without any noticeable rise in fuel pool temperature. The inspectors responded to the plant and observed the recovery lineup of the fuel pool cooling system. The inspector reviewed Off-Normal Event Procedure 05-1-02-III-1, "Inadequate Decay Heat Removal," Revision 24, along with GGNS personnel's actions for procedural compliance. The inspectors also reviewed licensee actions with regard to 10 CFR 50.72 and 10 CFR 50.73 reporting requirements. Licensee actions were documented in Condition Report CR-GGN-2002-1575.

b. Findings

No findings of significance were identified.

.2 Loss of Residual Heat Removal Train A Shutdown Cooling

a. Inspection Scope

On September 16, 2002, the inspector observed GGNS operator performance when they responded to a RHR room sump Hi-Hi alarm and an unplanned transfer from RHR Train A shutdown cooling to Alternate Decay Heat Removal. The inspector reviewed the licensee's response to the event to determine if operator response was in accordance with procedures and training. In addition, the inspector reviewed plant computer data and operator logs to further determine operator response.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors selected four operability evaluations conducted by GGNS personnel during the report period involving risk-significant SSCs. The inspectors evaluated the technical adequacy of the operability determinations, determined whether appropriate compensatory measures were implemented, and determined whether GGNS personnel considered all other pre-existing conditions, as applicable. Additionally, the inspectors evaluated the adequacy of the GGNS's problem identification and resolution program as it applied to operability evaluations. Specific operability evaluations reviewed are listed below.

- CR-GGN-2002-0755, Train A RHR system leakage
- CR-GGN-2002-1107, Postscram heatup and cooldown rate violations
- CR-GGN-2002-1493, Standby service water system leakage
- CR-GGN-2002-1628, Division III emergency diesel generator oil level

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

.1 Review of Selected Operator Workarounds

a. Inspection Scope

The inspectors evaluated significant operator workarounds to determine if the functional capability of the system or human reliability in responding to an initiating event was affected. The inspectors evaluated the effect of operator workarounds on the operator's ability to implement applicable abnormal and emergency operating procedures. The inspectors also reviewed the effect of the distraction caused by the operator workaround on operators' ability to effectively control the plant. The following workaround was reviewed:

- Significant Operator Workaround No. 3, dated 7/16/2002. Recirculation flow control valves are difficult to open during shifting of recirculation pumps to fast speed.

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed postmaintenance test procedures and associated testing activities for five selected risk-significant mitigating systems. In each case, the associated work orders and test procedures were reviewed against the attributes in Inspection Procedure 71111, Attachment 19, to determine the scope of the maintenance activity and determine if the testing was adequate to verify equipment operability. The reviewed activities were:

- MAI 299251, Control room air conditioning system, Train B
- MAI 299265, Standby gas treatment system, Train A
- MAI 313388, Reactor core isolation cooling (RCIC) system flow transmitter
- MAI 315222, Division I standby diesel generator restoration
- MAI 317583, Standby liquid control system, Train A

b. Findings

Isolation of main steam to the RCIC system occurred when GGNS maintenance personnel attempted to backfill the RCIC LDS's flow transmitter with a procedure that was inadequate for the job. The inspectors considered this inadequate maintenance procedure a Green NCV violation of Technical Specification 5.4.1.a.

On May 31, 2002, GGNS operations personnel noticed that indications for the RCIC steam flow leakage detection Transmitter 1E31N083B was drifting towards the out of specification reading as indicated on its associated Trip Unit 1E31N683B. To correct

this, GGNS personnel issued MAI 313388 to backfill the transmitter and dispatched instrumentation and control (I&C) personnel to perform the work. These I&C technicians did not realize the process side of the transmitter was at reactor pressure and additionally, the work instructions did not include a step to note system pressures prior to commencing the detector backfill. As a result, the I&C technicians backfilled the transmitter without using a high pressure pump as required when backfilling a detector at reactor pressure. The technicians ended up purging the fluid from the transmitter lines with steam. When the transmitter was restored, fluid condensed in the sensing lines of the transmitter which the transmitter sensed as high steam flow. This made the transmitter effectively detect a steam leak in the RCIC steam line, and by design shut the RCIC steam line isolation Valve E31F063B, thereby rendering the RCIC system inoperable.

The MAI utilized referenced Maintenance Procedure 07-S-13-48, "Filling, Venting, and Equalizing Sensing Lines," Revision 2, which gives generic guidance on how to backfill a differential pressure transmitter for generic backfilling guidance. This maintenance procedure did not provide a means to alert the I&C technicians as to what system pressures were prior to commencing maintenance. Since backfilling this detector normally occurs at off-rated conditions, the procedure was not tuned for the conditions at which it was performed. Such guidance would have provided the I&C technicians proper direction on how to satisfactorily proceed with backfilling this detector without isolating the RCIC system.

This finding is more than minor because the objective of the mitigating systems cornerstone to ensure the availability of systems, including the RCIC system, that respond to initiating events was not totally assured, attributable to inadequate maintenance procedural quality. Using Phase 1 of the SDP, the inspectors determined that this finding represented an actual loss of safety function of the RCIC system and required evaluation using Phase 2 of the SDP. In using Phase 2, the inspectors assumed for SDP purposes that no other mitigating systems were unavailable and the RCIC system was out of service for 10 hours (less than three days). This analysis resulted in characterizing the finding as Green or of very low safety significance. This determination was made because although the dominating sequences for a loss of the RCIC system are a transient without the power conversion system which utilizes the high pressure core spray system and safety relief valves, and a loss of offsite power which utilizes the emergency diesel generators, these appropriate mitigating systems were available and the unavailability of the RCIC system was of short duration.

The inspectors determined that the failure to prescribe adequate maintenance instructions to check transmitter system pressures to enable proper conduct of backfilling was a violation of Technical Specification 5.4.1, which requires maintenance procedures that can affect the performance of safety-related equipment to be performed in accordance with written instructions appropriate to the circumstances as stated in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. However, this violation is being treated as a NCV (NCV 05000416/2002-004-01) because of the very low safety significance of this condition and because the licensee included this condition in their corrective action program in Condition Report CR-GGN-2002-0947. This condition report documents GGNS personnel's efforts to enhance the detector backfill procedure to prevent recurrence of this type of event.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

The inspectors observed refueling outage planning and execution activities. The inspectors' review included scheduling, training, outage configuration management, decay heat removal operation and management, reactivity controls, inventory controls, tag out and clearance activities, foreign material exclusion management, and fuel movement and storage. Specific activities observed included:

- Reactor scram and shutdown
- Reactor cooldown and transition to shutdown cooling
- Transition from Mode 3 (hot shutdown) to Mode 4 (cold shutdown)
- Shutdown cooling and alternate decay heat removal operations
- Operations with potential to drain the reactor vessel during control rod drive mechanism removal and replacement
- Core alterations
- Drywell inspection closeout activities
- Jet Pump 13 removal and replacement
- Valve B33 FO67B inspection and repair

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed performance of surveillance test procedures and reviewed test data of five selected risk-significant SSCs to assess whether the SSCs satisfied the Technical Specifications, the Updated Final Safety Analysis Report, the Technical Requirements Manual, and licensee procedural requirements; and, to determine if the testing appropriately demonstrated that the SSCs were operationally ready and capable of performing their intended safety functions. The following tests were inspected:

- 06-CH-1B21-O-0002, "Reactor Coolant Routine Chemistry," Revision 104
- 06-EL-1L11-Q-0001, "125 Volt Battery Bank All Cell Check," Revision 103
- 06-OP-1P75-M-0001, "Standby Diesel Generator 11 Functional Test,"



Revision 118

- 06-OP-1R20-W-0001, "Plant AC and DC Electrical Power Distribution Weekly Lineup," Revision 104
- 06-OP-1T48-M-0001, "Standby Gas Treatment System A Operability," Revision 104

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed the temporary alteration listed below to assess the following attributes: (1) the adequacy of the safety evaluation; (2) the consistency of the installation with the modification documentation; (3) the updating of drawings and procedures, as applicable; and, (4) the adequacy of the postinstallation testing.

- No. 2002-006, Lifted lead for RCIC Valve E51F064

b. Findings

No findings of significance were identified.

**Emergency Preparedness [EP]**

1EP6 Drill Observation (71114.06)

a. Inspection Scope

On July 9, 2002, the inspectors observed a planned licensee emergency preparedness quarterly drill. The inspectors reviewed the drill scenario to determine if it reflected realistic plant configurations. The inspectors observed GGNS personnel at various locations during the exercise including the control room simulator, the technical support center, the emergency operations facility, and the operations support center. The inspectors primarily focused on the ability of the emergency response organization to properly classify the simulated emergency through recognition of emergency action levels, their ability to activate the station emergency plan and procedures, and their ability to make proper and timely notifications, as appropriate.

b. Findings

No findings of significance were identified.

### 3. SAFEGUARDS

#### Cornerstone: Physical Protection [PP]

##### 3PP3 Response to Contingency Events (71130.03)

The Office of Homeland Security (OHS) developed a Homeland Security Advisory System (HSAS) to disseminate information regarding the risk of terrorist attacks. The HSAS implemented five color-coded threat conditions with a description of corresponding actions at each level. NRC Regulatory Information Summary (RIS) 2002-12a, dated August 19, 2002, "NRC Threat Advisory and Protective Measures System," discusses the HSAS and provides additional information on protective measures to licensees.

##### a. Inspection Scope

On September 10, 2002, the NRC issued a Safeguards Advisory to reactor licensees to implement the protective measures described in RIS 2002-12a in response to the Federal government declaration of threat level "orange." Subsequently, on September 24, 2002, the OHS downgraded the national security threat condition to "yellow" and a corresponding reduction in the risk of a terrorist threat.

The inspectors interviewed licensee personnel and security staff, observed the conduct of security operations, and assessed licensee implementation of the threat level "orange" protective measures. Inspection results were communicated to the region and headquarters security staff for further evaluation.

##### b. Findings

No findings of significance were identified.

### 4. OTHER ACTIVITIES [OA]

##### 4OA1 Performance Indicator Verification (71151)

##### a. Inspection Scope

The inspectors verified the accuracy and completeness of the data used to calculate and report performance indicator information for three indicators from the third calendar quarter 2001 through the second calendar quarter 2002. The inspectors used Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 2, as guidance and interviewed licensee personnel responsible for compiling the information.

- Heat removal system (RCIC system) unavailability
- High pressure injection system (high pressure core spray system) unavailability
- Safety system functional failures

The inspectors also performed routine checks, while on tours throughout the plant, to

ensure that locked high radiation areas were properly secured.

b. Findings

No findings of significance were identified.

40A2 Identification and Resolution of Problems (71152)

a. Inspection Scope

The inspectors conducted in-depth reviews of the problem identification and resolution aspects of two issues. The inspectors reviewed the GGNS personnel's evaluations of operability and reportability for the issues, verified corrective actions were appropriately focused to correct the problems, and that those corrective actions were completed in a manner commensurate with the safety significance of the issue. The scope of the reviews also included determination whether identification was made in a timely manner, whether proper extent of condition was reviewed, and whether the corrective actions were completed in a manner commensurate with safety. The following two issues were reviewed:

- Primary containment isolation Valve E12F044A being discovered partially opened on two occasions
- Control room air conditioning unit Train B repetitive failures in June and July 2002

The inspectors also reviewed an issue which involved problem identification and resolution causes and documented it as a licensee-identified violation in Section 40A7 of this report.

b. Findings

No other findings of significance were identified.

40A3 Event Followup (71153)

.1 (Closed) Licensee Event Report 50-416/02-002-00, "RHR System Pressure Higher Than Normal Rendering Primary Containment Isolation Valve (PCIV) Inoperable For About 11 Days"

On April 7, 2002, the licensee noted from control room indications that the fill valve for the RHR system from the condensate and refueling water transfer system was not completely shut. Further inspection by the licensee revealed that this valve was also a primary containment isolation valve and had been left in this state for about 11 days. Based on the indeterminate amount of leakage from the valve in its as-found state, GGNS personnel declared the primary containment isolation valve inoperable. The time period for the declared inoperability was in excess of the allowed outage time set forth in Technical Specification 3.6.1.3, therefore the licensee wrote this licensee event report and the finding was captured in the licensee's corrective action program in Condition

Report CR-GGN-2002-0755.

The inspectors reviewed the licensee's safety assessment, condition report corrective actions, and troubleshooting efforts associated with this licensee event report and considered this issue a minor violation of Technical Specification 3.6.1.3.

.2 (Closed) Licensee Event Report 50-416/02-003-00, "Reactor Scram Due To Loss of Service Transformer 21"

On June 22, 2002, GGNS received an automatic reactor scram signal and shutdown. A raccoon climbed on the grounding transformer on the 34.5 kV side of Service Transformer 21, one of the two 500 kV dedicated offsite feeder transformers for the site, and created a phase-to-ground current path which actuated protective relays for the transformer that removed the offsite feeder from service. As a result, the main turbine electro-hydraulic control system experienced a dip in pressure which acted to fast close the turbine control valves and scram the reactor. This event was a condition that resulted in automatic actuation of a reactor scram by the reactor protection system, therefore the licensee wrote this licensee event report. In addition, GGNS personnel captured their corrective actions in Condition Reports CR-GGN-2002-1105, CR-GGN-2002-1106, and CR-GGN-2002-1110.

The loss of one of the site's dedicated offsite power feeders represented an increase in plant risk but the inspectors did not identify a performance deficiency pertaining to initiation of the event. Additionally, the inspectors reviewed the reported unexpected system responses, including the failure of the emergency operations facility emergency diesel generator to start, the failure of control room air conditioning system Train B to automatically load on the Division II emergency diesel generator, and the heat up and cool down rate limit violations resulting from the loss and subsequent restart of the reactor recirculation system pumps, and identified no findings of significance associated with these items.

4OA6 Meetings, including Exit

On September 19, 2002, the results of the inspection of inservice inspection activities were presented to Mr. W. Eaton, Vice President, Operations, and other members of licensee management.

On October 4, 2002, the resident inspectors presented the inspection results to Mr. W. Eaton and members of his staff.

The inspectors also asked if any materials examined during the inspections should be considered proprietary. No proprietary information was identified by the licensee.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as an NCV.

10 CFR 50, Appendix B, Criterion XVI states in part that measures shall be established to assure that conditions adverse to quality, such as malfunctions, are promptly identified and corrected. On May 31, 2002, during a monthly surveillance run, the standby gas treatment system Train A enclosure building fan failed to start due to ineffective actions to correct the failure of the fan to start following a previous system outage on May 30, 2002. This condition is described in the licensee's corrective action program in Condition Reports CR-GGN-2002-0942 and CR-GGN-2002-0948. Because only the radiological barrier function of the system was degraded, this violation is not more than of very low safety significance, and is being treated as a NCV.

## ATTACHMENT

### PARTIAL LIST OF PERSONS CONTACTED

C. Abbott, Quality Assurance Supervisor  
D. Barfield, Manager, System Engineering  
R. Barnes, Manager, Training and Development  
C. Bottemiller, Manager, Plant Licensing  
K. Christian, Superintendent, Mechanical Maintenance  
M. Cross, ISI Coordinator, Quality Assurance and Nondestructive Examination  
W. Deck, Security Superintendent  
W. Eaton, Vice President, Operations  
J. Edwards, General Manager, Plant Operations  
C. Ellsaesser, Manager, Corrective Action and Assessment  
A. Goel, Senior Engineer, Plant Licensing  
M. Guynn, Manager, Emergency Preparedness  
R. Moomaw, Manager, Outage Planning and Scheduling  
M. Mottsen, Supervisor, Engineering  
J. Roberts, Director, Nuclear Safety Assurance  
J. Robertson, Manager, Quality Assurance  
E. Rogers, Manager, Site Support  
M. Rohrer, Manager, Maintenance  
G. Sparks, Manager, Operations  
D. Watt, Site Welding Engineer, Engineering Programs and Components  
D. Wiles, Director, Engineering  
R. Wilson, Superintendent, Radiation Protection  
H. Yeldell, Manager, Design Engineering

### **ITEMS OPENED, CLOSED, AND DISCUSSED**

#### Opened

05000416/2002-004-01	NCV	Performance of maintenance using an inadequate procedure leads to isolation of the reactor core cooling isolation system (Section 1R19)
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#### Closed

05000416/2002-002-00	LER	RHR system pressure higher than normal rendering primary containment isolation valve (PCIV) inoperable for about 11 days (Section 4OA3)
05000416/2002-003-00	LER	Reactor scram due to loss of service Transformer 21 (Section 4OA3)
05000416/2002-004-01	NCV	Performance of maintenance using an inadequate procedure leads to isolation of the reactor core cooling isolation (Section 1R19)

**LIST OF DOCUMENTS REVIEWED**

Procedures:

Emergency Plan Procedure 10-S-01-1, "Activation of the Emergency Plan," Revision 109

Emergency Plan Procedure 10-S-01-6, "Notification of Offsite Agencies and Plant On-call Emergency Personnel," Revision 36

Emergency Plan Procedure 10-S-01-33, "Emergency Operations Facility Operations," Revision 11

General Maintenance Instruction 07-S-12-44, "Station Battery Pilot Cell Inspection," Revision 11

Grand Gulf Nuclear Station Unit 1 Fire Preplans, Volumes 1 and 2, Revision 11

Off-Normal Event Procedure 05-S-01-EP2, "EP-2A, RPV Control - ATWS," Revision dated April 24, 2001

Off-Normal Event Procedure 05-1-02-VI-1, "Flooding," Revision 102

System Operating Instruction 04-1-01-L11-1, "Plant DC Systems," Revision 115

QAI 9.30, "Liquid Penetrant Examination," Revision 5

QAI 9.15, "Magnetic Particle Examination," Revision 7

NDE 9.24, "Manual Ultrasonic Examination of Reactor Vessel Ligament Areas," Revision 2

NDE 9.26, "Ultrasonic Manual Examination of Class 1 Reactor Vessel Welds," Revision 2

NDE 9.23, "Ultrasonic Examination of Austenitic Piping Welds," Revision 2

NDE 9.07, "Straight Beam Ultrasonic Examination of Bolts and Studs," Revision 2

NDE 9.25, "Manual Ultrasonic Examination of Nozzle Radii," Revision 2

NDE 9.04, "Ultrasonic Examination of Ferritic Piping Welds," Revision 2

NDE 9.55, "Radiographic Examination of ASME, ANSI, AWS, API, AWWA Welds and Components," Revision 0

Condition Reports:

1999-1976	2002-0823	2002-1106	2002-1240
2002-0494	2002-0912	2002-1115	2002-1423
2002-0755	2002-0933	2002-1149	2002-1454

Maintenance Action Items:

250736	310606	315281	318422
304244	312342	317065	318801
307083	313508	317683	319002
308112	314272	318000	319075
308461			

Examinations Reviewed:

<u>System</u>	<u>Component/Weld Identification</u>	<u>Examination Method</u>
Reactor Coolant System	B13-0910-89	Ultrasonic Examination
Reactor Coolant System	B13-0904-89	Ultrasonic Examination
Reactor Coolant System	B13-0909-89	Ultrasonic Examination
Feedwater System	B21-0746-92	Ultrasonic Examination
Feedwater System	B21-0433-89	Ultrasonic Examination
Feedwater System	B21-0442-89	Ultrasonic Examination
Feedwater System	B21-0452-89	Ultrasonic Examination
Feedwater System	B21-1078-90	Dye Penetrant
Feedwater System	B21-0469-89	Ultrasonic Examination
Feedwater System	B21-0440-89	Magnetic Particle
Feedwater System	B21-0441-89	Dye Penetrant
Feedwater System	B21-0349-95	Magnetic Particle
Reactor Recirculation	B33-1236-92	Ultrasonic Examination
Reactor Recirculation	B33-1124-92	Ultrasonic Examination
Reactor Recirculation	B33-0192-89	Dye Penetrant
Reactor Recirculation	B33-0971-89	Ultrasonic Examination
Reactor Recirculation	B33-0202-89	Dye Penetrant
Control Rod Drive	C11-0528-90	Ultrasonic Examination
Control Rod Drive	C11-0550-90	Ultrasonic Examination



Other Miscellaneous Documents:

Calculation EC-Q1L11-91011, "Station Blackout Evaluation of 125 VDC Division I Battery,"  
Revision 0

Calculation EC-Q1L21-90047, "Sizing of 125 VDC Division II Battery and Chargers," Revision 2

"Detroit Diesel Engines Series 149 Service Manual," Revision 4/77

Kohler Generators 500R0ZD Operating Instructions